AAV-3G-XMUX
User Manual

Revision: B

2015-05-07

Contents

1 Revision History **3**

2 Product Overview **4**

2.1 Summary 4

3 Introduction **5**

3.1 AAV-3G-XMUX-C1 6

3.2 AAV-3G-XMUX-C2 7

3.3 AAV-3G-XMUX-C3 7

4 Connections **9**

5 Configuration **13**

5.1 DIP switch configuration 13

5.2 GYDA configuration 13

6 General environmental requirements **14**

A Materials declaration and recycling information **15**

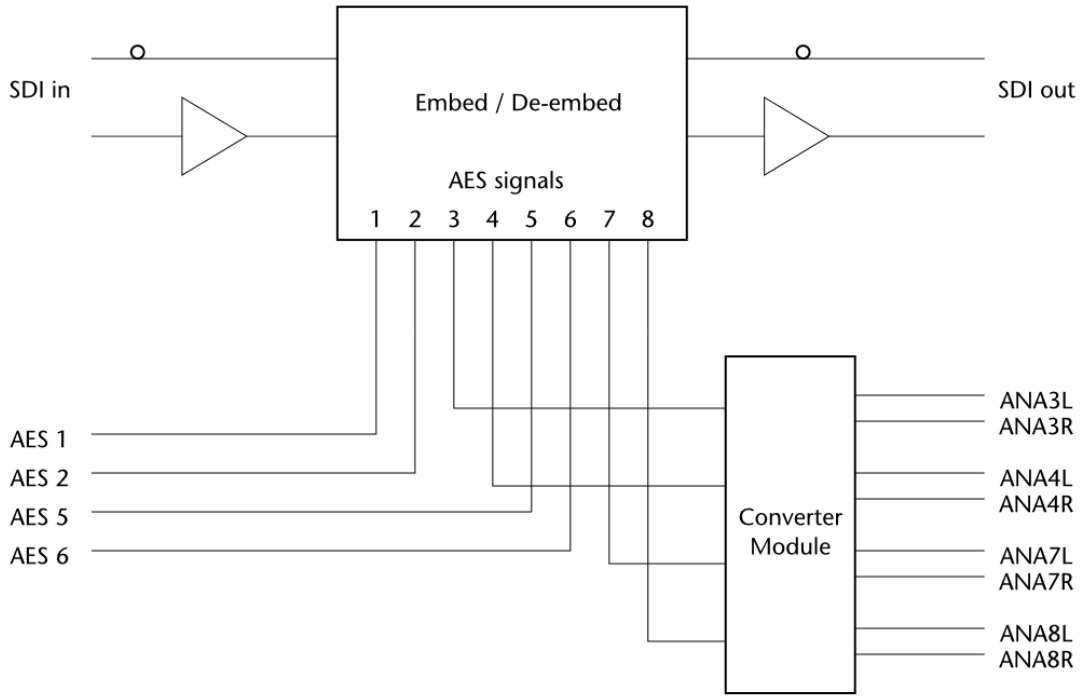
A.1 Materials declaration 15

A.2 Recycling information 15

1 Revision History

Revision	Date	Comments
A	2013-12-12	First revision
B	2015-05-07	Renumbered analogue connections.

2 Product Overview



2.1 Summary

- Digital audio embedder with digital and analogue audio
- Less cabling on backpanels.
- High density: Single width backplane with two modules (Not original Flashlink frame or N-box).
- Uses standard embedder and audio converter modules.
- 8 analogue audio signals and 4 AES signals.
- 3 audio converter module options

3 Introduction

The AAV-3G-XMUX is a integrated analog and digital audio embedding module in the Flashlink range, offering simultaneous embedding and de-embedding of four AES3 stereo digital audio channels and 4 analog stereo audio channels on a digital 3G/HD/SD-SDI serial video signal. The product is a two card solution onto a backplane that can be a dual slot backplane for the Flashlink frame, or a single slot backplane for the Flashcase or Flashlink II frame.

There are 4 AES ports and each may be used as either an input or an output. The sample rate converters may be inserted by the module when needed, or the user can disable them. data signals such as Dolby-E will always be embedded transparently without using the sample rate converters. There are three audio converter modules that may be used giving either A/D conversion , D/A conversion or a combiation of both. The audio conversion is broadcast quality with more than 105dBA dynamic range for any conversion. All embedding and de-embedding is with synchronous 48 kHz audio.
The unit may be ordered with optical transmitter and receiver options. The laser options range from the standard -5dBm 1310nm to the DWDM units.
The module has signal generators for audio and video for test and line-up applications. The internal video generator may be used as a fall-back source that is used if the both the electrical and the optical input signals fail. This allows uninterrupted transmission of embedded audio.
The cards can be setup with DIP switches, web interface and SNMP. The audio control is provided as a router level to the control system allowing for panel control. Signal status can be monitored with the front LEDs, the web interface or with SNMP.

The AAV-3G-XMUX-Cn backplanes use two modules in a compact form factor. A number of cross connections between the modules reduces the cabling and connector requirements of a system. The backplanes may be used with a number of embedder and audio converter modules giving a wide range of functionality. The following table shows the combinations which will work and the audio signals available with each combination.

Module combinations	Analogue inputs	Analogue outputs	AES inputs and outputs
AV-3G-XMUX + ADC-AES8	8	0	4
AV-3G-XMUX + DAC-AES8	0	8	4
AV-3G-XMUX + ADDA-AES8	4	4	4
AV-HD-XMUX + ADC-AES8	4	0	2+2
AV-HD-XMUX + DAC-AES8	0	4	2+2
AV-HD-XMUX + ADDA-AES8	4	4	2+2
AV-SD-XMUX + ADC-AES8	4	0	2+2
AV-SD-XMUX + DAC-AES8	0	4	2+2
AV-SD-XMUX + ADDA-AES8	4	4	2+2

Three backplane types are presently available:-

3.1 AAV-3G-XMUX-C1

Single width backplane. 4 AES and 8 analogue signals on female d-sub DC-37, BNC SDI and single optical connector.

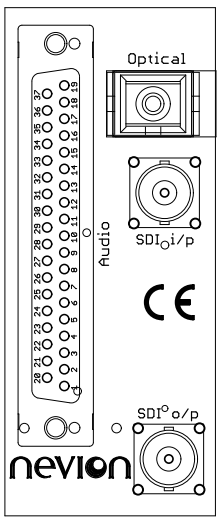


Figure 3.1 AAV-3G-XMUX-C1

3.2 AAV-3G-XMUX-C2

Flashcase single width backplane. 4 AES and 8 analogue signals on Molex Male KK, SDTI BNC output only and dual optical connectors.

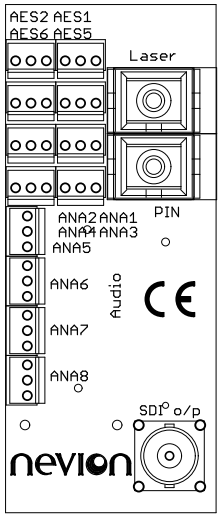


Figure 3.2 AAV-3G-XMUX-C2

3.3 AAV-3G-XMUX-C3

Double width backplane. 5 AES on female d-sub DE-15, 8 analogue signals on female d-sub DB-25, BNC SDI, 8P8C modular jack GPI/RS422 and dual optical connectors.

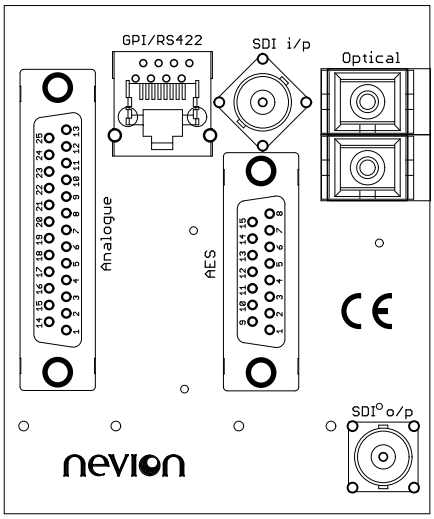


Figure 3.3 AAV-3G-XMUX-C3

The AV-HD-XMUX and AV-SD-XMUX modules may be used with thes backplanes but is only optimal with the ADDA-AES8. The other converter modules may be used but some of the analogue audio channels will not be useable.

4 Connections

The backplanes use the TASCAM standard pin assignment for 8 balanced audio channels on the female DB-25. A similar pattern is used for the connections on the DE-15 and DC-37 dsub connectors as shown below. The numbering refers to the AES number on the XMUX embedder.

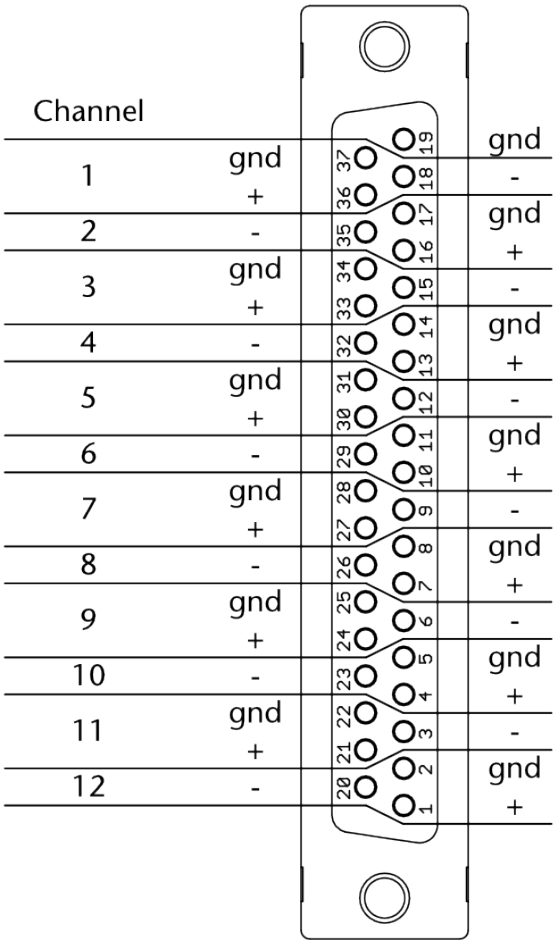


Figure 4.1 dsub DC37 wiring

Table 4.1a DC37 channel assignments with different converter modules

Channel.	ADC-AES8.	DAC-AES8.	ADDA-AES8.
1	AES1	AES1	AES1
2	AES2	AES2	AES2
3	AES5	AES5	AES5
4	AES6	AES6	AES6
5	ADC3 L	DAC3 L	DAC3 L

Table 4.1b DC37 channel assignments with different converter modules

6	ADC3 R	DAC3 R	DAC3 R
7	ADC4 L	DAC4 L	DAC4 L
8	ADC4 R	DAC4 R	DAC4 R
9	ADC7 L	DAC7 L	ADC7 L
10	ADC7 R	DAC7 R	ADC7 R
11	ADC8 L	DAC8 L	ADC8 L
12	ADC8 R	DAC8 R	ADC8 R

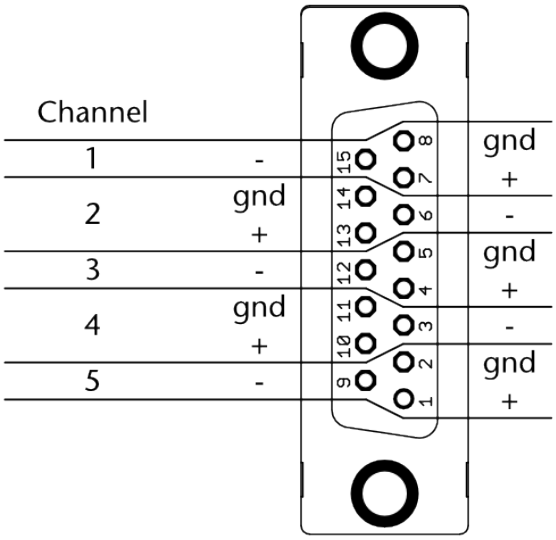


Figure 4.2 dsub DE15 wiring

Table 4.2 DE15 channel assignments

Channel.	
1	AES1
2	AES2
3	AES5
4	AES6
5	AES SYNC

The AES connections go to the XMUX embedder module. The AES SYNC connection is the ADC AES11 sync input.

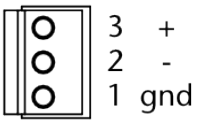


Figure 4.3 Molex KK wiring

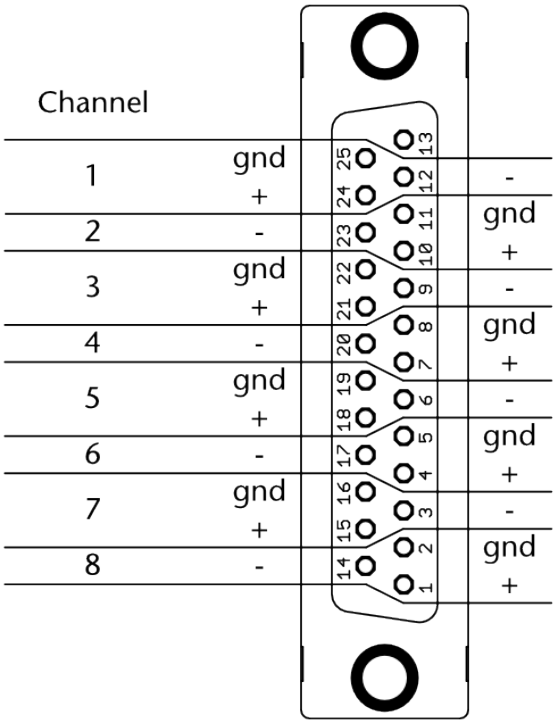


Figure 4.4 dsub DB25 wiring

Table 4.3 DB25 channel assignments with different converter modules

Channel.	ADC-AES8.	DAC-AES8.	ADDA-AES8.
1	ADC3 L	DAC3 L	DAC3 L
2	ADC3 R	DAC3 R	DAC3 R
3	ADC4 L	DAC4 L	DAC4 L
4	ADC4 R	DAC4 R	DAC4 R
5	ADC7 L	DAC7 L	ADC7 L
6	ADC7 R	DAC7 R	ADC7 R
7	ADC8 L	DAC8 L	ADC8 L
8	ADC8 R	DAC8 R	ADC8 R

AV-HD-XMUX and AV-SD-XMUX cannot use ADC1 and ADC2 when used with an ADC-AES8.
AV-HD-XMUX and AV-SD-XMUX cannot use DAC3 and DAC4 when used with an DAC-AES8.
AV-HD-XMUX and AV-SD-XMUX signals AES1 and AES2 are outputs, and AES5 and AES6 are inputs.

5 Configuration

5.1 DIP switch configuration

DIP switch configuration of the two modules in use will always work as described in the respective module user manuals. It is up to the user to set the port directions of the AV-3G-XMUX correctly according to the audio converter module in use. The AES ports on the embedder connected to the audio converter modules are; AES3, AES4, AES7 and AES8. These signals are connected to the AES1 to AES4 respective connections of the audio converter modules.

5.2 GYDA configuration

The dual slot backplane shows both modules as their normal types in the Flashlink chassis.
The single slot backplanes presently only show the embedder module. Future versions will also show the converter module. The audio clipping levels of the audio converter modules must be adjusted with the DIP switches if not shown on the web GUI.

The AV-3G-XMUX embedder module (Firmware FW 1.05 or higher) has a special control at the bottom of the cofiguration page: *Daughter converter board.* The four options set the correct audio ports to inputs or outputs and removes their configuration from the page. Changing the option forces a reload of the card configuration so it *will disappear shorlty from GYDA.*
The options (other than none) change the main graphic on the info page which reflects the usage of the audio ports (GYDA version 4.0.1 or higher). The numbering shown is chosen to be compatible with the numbering in the audio matrix configuration. ADC and DAC signals shown are stereo signals.

The AV-HD-XMUX and AV-SD-XMUX do not have configurable AES ports so the daughter converter board option is not present. AES3 and AES4 are outputs and will feed DAC1 and DAC2. AES7 and AES8 are inputs and will receive the signal from ADC1 and ADC2 if the ADDA-AES8 is used. AES7 and AES8 are inputs and will receive the signal from *ADC3* and *ADC4* if the ADC-AES8 is used.

6 General environmental requirements

The equipment will meet the guaranteed performance specification under the following environmental conditions:

Operating room temperature range	0°C to 45°C
Operating relative humidity range	<90% (non-condensing)

The equipment will operate without damage under the following environmental conditions:

Temperature range	10°C to 55°C
Relative humidity range	<90% (non-condensing)

Appendix A Materials declaration and recycling information

A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the "Administrative Measure on the Control of Pollution by Electronic Information Products". In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
AAV-3G-XMUX	O	O	O	O	O	O
	O	O	O	O	O	O

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

This is indicated by the product marking:

A.2 Recycling information

Nevion provides assistance to customers and recyclers through our web site: http://www.nevion.com/. Please contact Nevion's Customer Support for assistance with recycling if this site does not show the information you require.
Where it is not possible to return the product to Nevion or its agents for recycling, the following general information may be of assistance:
Before attempting disassembly, ensure the product is completely disconnected from power and

signal connections.
All major parts are marked or labeled to show their material content.
Depending on the date of manufacture, this product may contain lead in solder.
Some circuit boards may contain battery-backed memory devices.